

LETTER TO THE EDITOR

Small vessel vasculitis related to varicella-zoster virus after Pfizer-BioNTech COVID-19 vaccine

Dear Editor,

We read with great interest the article by Ackerman *et al.*¹ regarding the occurrence of persistent maculopapular rash few hours after receiving the vaccine.¹

We herein report a case of atypical varicella-zoster virus skin infection inducing a small vessel vasculitis after first dose of Pfizer-BioNTech COVID-19 vaccine. An 84-year-old female patient, with medical history of chronic kidney disease and depressive disorder, received the first dose of Pfizer-BioNTech (Mainz, Germany) COVID-19 vaccine. Few hours later, she developed burning pain on the distal part of right leg and foot, followed by multiple non-confluent purpuric papules and vesicles in the same sites (Figs 1 and 2). Clinical examination did not show signs of systemic involvement and serum tests showed varicella-zoster virus (VZV) IgM and IgG antibodies positivity and high levels of liver enzymes (2N). Punch biopsy of right lower leg was performed and histopathologic examination showed intraepidermal spongiosis with acantholytic keratinocytes, multinucleation and intranuclear inclusion bodies. Superficial dermis showed vasculitic damage with inflammatory infiltrate, fibrin exudation, extravasated erythrocytes and leucocytoclasia. Direct immunofluorescence test was negative. Polymerase chain



Figure 1 Small cell vasculitis varicella-zoster virus – related on right foot.



Figure 2 Small cell vasculitis varicella-zoster virus – related on right leg.

reaction of a skin swab for VZV resulted positive. Therefore, the diagnosis of atypical herpes zoster associated with cutaneous vasculitis was made. Treatment was started with famciclovir 500 mg orally every 8 h for 10 days. A clinical improvement of her skin lesions was achieved in few days, and they were completely resolved 2 weeks later despite the persistence of local pain. Because of the persistence of local pain and liver involvement, the patient refused to take the second dose of vaccine.

Although Pfizer-BioNTech COVID-19 vaccine is considered safe, side-effects, especially dermatological ones, are currently poorly characterized. Clinical trials have reported that the most frequent cutaneous side-effects are injection-site reaction and pruritus; cases of allergic reactions such as urticaria and diffuse erythematous rash have been described.^{2,3} Anecdotal cases of erythema multiforme and morbilliform rash have been reported in the literature.^{1,4} In this article, we describe an atypical manifestation of herpes zoster infection after COVID-19 vaccine which caused small vessel vasculitis. Other cases of vasculopathies during VZV infection have been described,⁵ and it is due to virus ability to infect endothelial cells directly, but no cases of herpes zoster vasculitis after COVID-19 vaccine have been reported. The age of patient and the immune reaction to vaccine would have induced a condition of immunosuppression,

underlying virus reactivation. VZV infection must be considered in cases of purpuric lesions with acral localization and unilateral distribution, especially in immunocompromised patients and when other causes of vasculitis have been excluded. Early and correct diagnosis is important to reassure the patient and start timely therapy reducing the risk of postherpetic neuralgia.

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Conflict of interest

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